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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicants:	Tonia G. Morris, et al.	§	Art Unit:	2612
Serial No.:	09/106,994	§	Examiner:	Jason T. Whipkey
Filed:	June 29, 1998	§		
Title:	Imager Having Multiple Storage Locations for Each Pixel Sensor	§	Docket No.	ITL.0061US (P5989)

Mail Stop **Appeal Brief-Patents**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Dear Sir:

The following reply is submitted to the Examiner's Answer.

I. CLAIMS APPEALED

The appealed claims are claims 1 and 3-5 grouped together; claims 6 and 8-10 grouped together; claims 18-21 grouped together; claims 22-24 grouped together; and claims 25-28 grouped together.

II. REPLY TO EXAMINER'S ARGUMENTS

The Examiner' Answer still fails to set forth a *prima facie* case of obviousness for any of the claims. For example, each of the claims specify that each of the storage locations (for

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Janice Munoz

each pixel sensor) is designated for a different primary color component. Each of these storage locations is coupled to the pixel sensor during an integration interval. More specifically, the imager of independent claim 1 states that each storage location is designated for a different primary color component of an image; the camera of independent claim 6 states that each storage location is designated for a different primary color component; the method of independent claim 18 recites that each storage location is designated for a different primary color component of an image; and the imager of independent claim 22 states that each integration device is designated to provide a different value for a different primary color. Considering these claim limitations, the Examiner fails to show where the prior art teaches or suggests *designating each storage location for a different primary color and integrating in that storage location* (*emphasis* added).

In the Examiner's Answer, the Examiner refers to the language found in lines 59-65 in column 5 of Elabd, language that discusses image registers that integrate one color exposure at a time. Examiner's Answer, 7. The Examiner also refers to the language found in lines 34-45 in column 9 of Baker, language that discusses two capacitors 2a and 2b. Examiner's Answer, 7. During a given integration interval, one of the capacitors 2a and 2b integrates light while a previously integrated value is read out from the other of the capacitors 2a and 2b. The roles of the capacitors 2a and 2b alternate for each integration cycle.

Based on these teachings, the Examiner concludes it would have been obvious to modify Elabd so that Elabd's image register contains Baker's capacitors 2a and 2b and associated circuitry. Examiner's Answer, 7. However, even assuming, *arguendo*, that this modification is proper, the Examiner has failed to show where the prior art teaches or suggests all claim limitations.

More specifically, the Examiner fails to show where the prior art contains the alleged suggestion or motivation to modify Elabd's image register so that storage locations in the image register are designated for different primary color components. Elabd merely teaches during a first integration interval, integrating into one storage location for one color; and during the next integration interval, integrating into the same storage location for another color. Thus, in Elabd, there is no designation of colors, as set forth in claim 1. Baker does not teach or suggest designating the capacitors 2a and 2b for different primary color components. Even if Baker were combined with Elabd, one of the capacitors 2a, 2b would, during a first integration interval, integrate light associated with a first color, and during the next integration interval, integrate light associated with another color. Thus, the cited prior art does not teach or suggest primary color component designation for integrating storage devices. In short, the Examiner, *having knowledge of the claimed invention*, is rejecting the claims under 35 U.S.C. § 103 without showing why one skilled in the art, *without knowledge of the claimed invention*, would have modified Elabd in view of Baker to derive the claimed invention.

Thus, Applicant maintains that all of the § 103 rejections of the claims are in error and should be reversed. The Commissioner is authorized to charge any fees or credit any overpayment to Deposit Account No. 20-1504 (ITL.0061US).

Respectfully submitted,

Date: May 24, 2004

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APPENDIX OF CLAIMS

The claims on appeal are:

1. An imager comprising:

an array of pixel sensors, each pixel sensor to indicate at least two different primary color components of an image;

for each pixel sensor, at least two storage locations located in the array to store the indications from the pixel sensor and each storage location being designated for a different one of the primary color components of the image; and

for each pixel sensor, circuitry to, during a first integration interval, couple the pixel sensor to one of the associated storage locations to store one of the indications from the sensor and, during a second integration interval, couple the pixel sensor to another one of the storage locations to store another one of the indications from the sensor.

3. The imager of claim 1, wherein the circuitry includes an analog-to-digital converter to convert the indications from the pixel sensor into a digital format.

4. The imager of claim 1, wherein the indications comprise analog signals.

5. The imager of claim 1, wherein the indications comprise digital signals.

6. A camera comprising:

an array of pixel sensors, each pixel sensor to indicate at least two color components of an image;

a programmable color filter substantially covering the array;

a controller to control the color filter to cause the pixel sensors to indicate the color components one at a time;

for each pixel sensor, at least two storage locations located in the array to store the indications from the pixel sensor and each storage location being designated for a different one of the primary color components of the image; and

for each pixel sensor, circuitry to, during a first integration interval, couple the pixel sensor to one of the associated storage locations to store one of the indications from the sensor and, during a second integration interval, couple the pixel sensor to another one of the storage locations to store another one of the indications from the sensor.

8. The camera of claim 6, wherein the circuitry includes an analog-to-digital converter to convert the indications from the pixel sensor into a digital format.

9. The camera of claim 6, wherein the indications comprise analog signals.

10. The camera of claim 6, wherein the indications comprise digital signals.

18. A method comprising:

providing a pixel sensor;

providing at least two storage locations associated with the pixel sensor and each storage location being designated for a different primary color component of an image;

during a first integration interval, coupling the pixel sensor to one of the associated storage locations to store an indication from the pixel sensor; and

during a second integration interval, coupling the pixel sensor to another one of the storage locations to store another indication from the pixel sensor.

19. The method of claim 18, wherein

one of the indications from the pixel sensor indicates a first primary color component; and

another one of the indications from the pixel sensor indicates another primary color component different from the first primary color component.

20. The method of claim 18, further comprising:

converting the indications from the pixel sensor into a digital representation; and

storing the digital representations in the storage locations in response to the coupling.

21. The method of claim 18, further comprising:

forming a pixel sensor array that includes the pixel sensor.

22. An imager comprising:

an array of pixel sensors; and

at least two integration devices for each pixel sensor, each integration device being designated to provide a value for a different primary color.

23. The imager of claim 22, wherein each of said at least two storage locations are associated with different color components.

24. The imager of claim 22, wherein each of said at least two storage locations are associated with different primary color components.

25. The imager of claim 22, wherein said at least two integration devices comprise at least three integration devices for each pixel sensor.

26. The imager of claim 1, wherein said at least two storage locations comprise at least three storage locations for each pixel sensor.

27. The camera of claim 6, wherein said at least two storage locations comprise at least three storage locations for each pixel sensor.

28. The method of claim 18, wherein said at least two storage locations comprise at least three storage locations for each pixel sensor.